GLAS Laser 3 Energy Analysis and Extrapolations for Campaigns L3k-L3m

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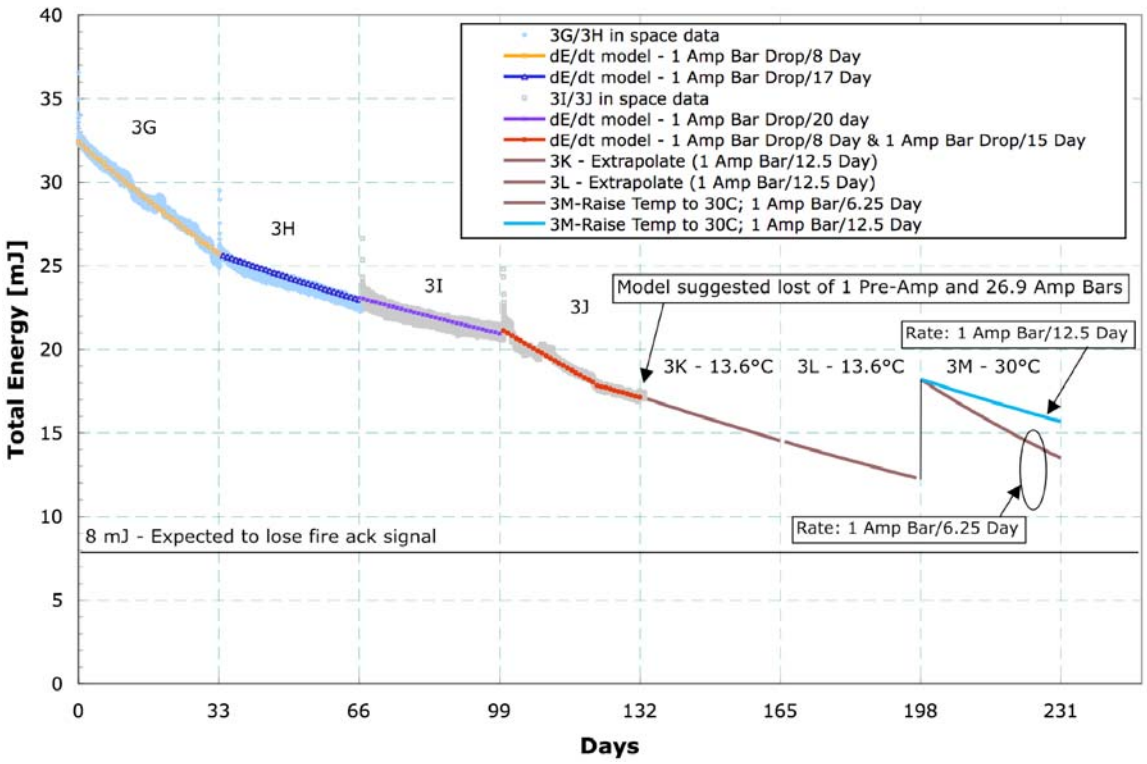
9-29-08

In-Space GLAS Laser 3 Energy History for campaigns L3G-L3J + Extrapolations for Future Campaigns L3K-L3M



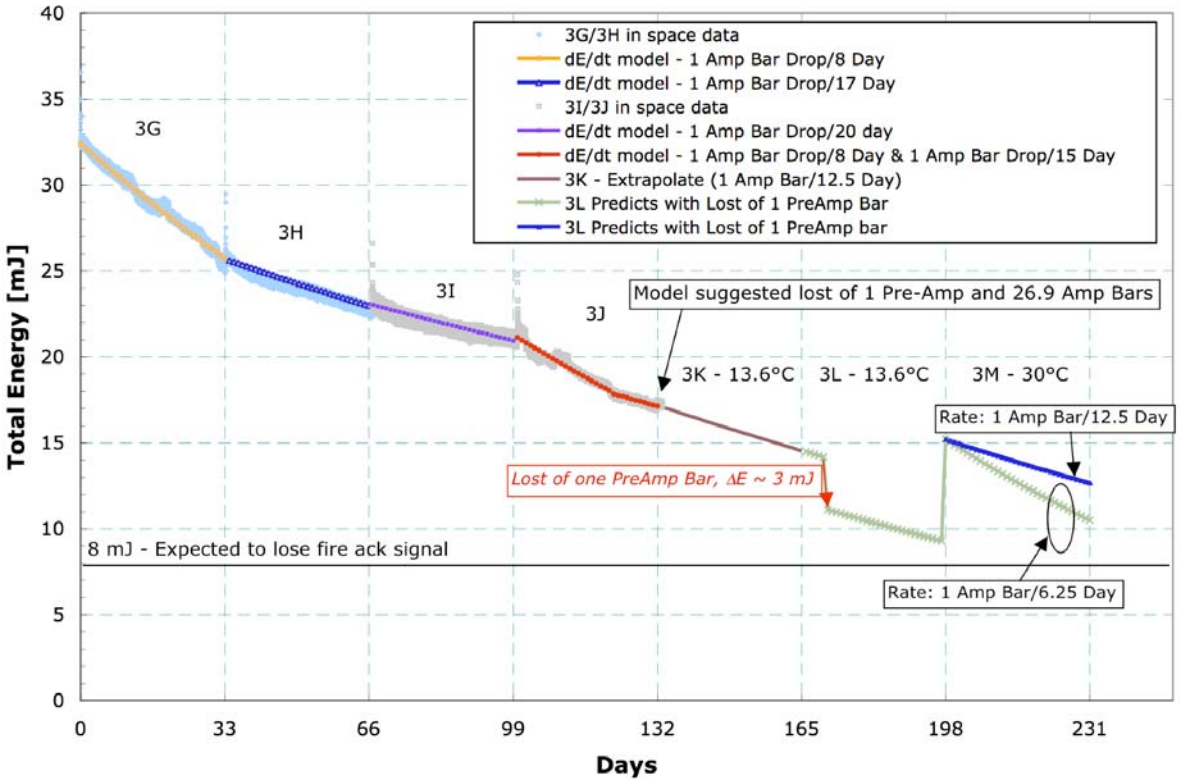
For planning beyond L3m:

Using these assumptions, extrapolations from the laser model indicates the L3 remaining lifetime to be 4-6 more campaigns, ending during L3o or L3p.

Key points -

1. Fitted campaigns 3G-3J using 13.6C as laser reference temperature.
2. Model suggested at end of 3J, there were 1 PreAmp and ~27 Amp bars dropped so far. (Note: this is one of many combinations of bars drop between PreAmp & Amp being considered).
3. Using the average of past four campaigns to extrapolate for future campaigns 3K-3M.
4. For 3K and 3M, the rate of decline is 1 Amp Bar Drop (or equivalent energy lost) per 12.5 Days.
5. One of the scenarios being considered is to raise the temperature from 13.6C to 30C at end of 3L to increase the energy. This adjustment increase the energy by about 5 mJ.
6. Assuming the rate of decline is the same at 1 Amp Bar Drop/12.5 Day, the energy at the end of 3M is predicted to be > 15 mJ.
7. To investigate the increased rate of decline for increased temperature operation, we doubled the rate to 1 Amp Bar Drop/6.25 Day. The energy at end of 3M is predicted to be around 13.5 mJ (Brown Curve)

Laser 3 Energy Trend Extrapolation for Campaigns L3K-L3M with additional loss of a single Pre-Amp Bar



For planning beyond L3m:
Using these assumptions, extrapolations from laser model show the L3 remaining lifetime to be 3.5 to 5 more campaigns, ending during L3n or L3o.

Key points -

1. One other scenario we considered is the drop of an entire PreAmp bar in campaign 3L. This drops the energy by about 3 mJ and the predicts for energy at end of 3L is just below 10 mJ (Green Curve).

2. If at beginning of 3M, the temperature increases to 30C, then the energy will go up to ~15 mJ.

3. Two scenarios are presented:
   - Rate at 1 Amp Bar Drop/12.5 Day
   - Rate doubles to 1 Amp Bar Drop/6.25 Day

   to show the possibility of higher decay rate at higher operating temperature.